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THE PLANT DISEASE REPORTER

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Division of Mycology and Disease Survey

BUREAU OF PLANT INDUSTRY

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The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

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THE PLANT DISEASE SURVEY

DIVISION OF MYCOLOGY AND DISEASE SURVEY

Volume XXIII December 15, 1939 Number 23

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DISEASES OF FRUITS AND VEGETABLES ON THE NEW YORK MARKET DURING THE MONTHS OF APRIL TO SEPTEMBER, INCLUSIVE, 1939

James S. Wiant and C. O. Bratley

In continuing to point out unusual types of market troubles and the unusual prevalence of some of the more common diseases, the following observations are reported.

APPLES:

Gravenstein apples from California arriving at New York in August and September were in better condition than usual. Bitter pit (non-parasitic) was found in practically all shipments but was rarely as common as in shipments of the past few years. Gray mold rot (Botrytis spp.) was found affecting 3 percent of the apples in 2 cars. This decay was found in about the same amounts as last season but considerably less so than in 1937.

In early September a number of lots of McIntosh and Cortland apples from the Hudson Valley were found affected with cork (non-parasitic). Small areas of affected tissue were well scattered throughout the flesh of the apple. No external evidence of the disease was manifest except a deeper color on many of the affected fruits. In one early-picked lot almost every apple cut showed some cork.

Apples from Virginia, Maryland, and Pennsylvania showed unusually large amounts of bitter rot (Glomerella cingulata). One car from Virginia offered for export shipment contained 10 percent of this decay; several cars sold locally contained from 2 to 4 percent.

During late September 3 car-lots of apples from Delaware showed 3, 4, and 5 percent respectively of phytophthora rot (Phytophthora sp.).

CABBAGE:

Discoloration by the downy mildew fungus (Peronospora parasitica) was observed on a single head of northern-grown cabbage brought to the laboratory in late April. The fungus had penetrated deeply into the head with most of the stalk and the basal third of the leaves affected. The tissues were firm, moist, and grayish-black. The exact origin of the head was unknown. This is the first time we have observed this disease on the New York market.

CELERY:

Unusual amounts of blackheart were observed in Florida celery arriving on the market at the beginning of April. In one instance as high as 70 percent of the plants were affected.

CHERRIES:

Cherries from the Northwest arrived in better condition than they did during either of the previous 2 seasons. Probably more loss was caused by freezing in the bottom-layer lugs of the cars than was caused by decay. In one car examined almost 1/8 of the lugs contained some frozen fruit. The freezing resulted from excessive salting of the ice in the car bunkers for the purpose of obtaining low temperatures during transit.

ORANGES:

During the present year Florida Valencia oranges in greater quantities than usual were placed in storage during April and May, and held at 32°F. for from 2 to 4 months. Except for the usual amount of wilting and shriveling there was no spoilage of consequence until the fruit had been in storage 2-1/2 to 3 months. Then a dry black decay appeared at the stem end of many of the fruits. At first it was manifested only by the loosening of the stem part (button); later, small areas of the skin at the stem became sunken, spongy, and black. The decay gradually involved the core tissue, turning it dry and black. In some cases black mold growth appeared on the stem parts. Isolations from the decayed tissue gave a species of Alternaria.

Early-season shipments of the new 1939 crop of Florida oranges were severely affected with a breakdown of the skin in the form of large sunken areas usually at the stem end. Such injury is produced by long continued degreening treatment coupled with overheating and chemical action during the dyeing process. Practically every shipment received during September showed from 10 to 100 percent of the fruit affected to some extent.

PINEAPPLES:

Black rot (Thielaviopsis paradoxa) was found affecting shipments of Puerto Rican and Cuban pineapples throughout the season in irregular amounts varying between 2 and 25 percent, and averaging about 4 or 5 percent.

A blemish consisting of cracking and gumming between the basal fruitlets occurred more frequently than in the past few years. There was no evidence that cracking and gumming increased materially during transit and ripening of the fruit although most of the areas were infected with species of Fusarium and Penicillium.

POTATO:

Bacterial soft rot was unusually prevalent in North Carolina potatoes received during June. Although many cars arrived in sound condition, in others the decay was present in important amounts. In one carlot that came to our attention 3 to 20 percent of the tubers were affected with decay in some sacks, 25 to 55 percent in the majority of the sacks, and in some sacks

100 percent. Certificates issued by the Agricultural Marketing Service covering the inspection of 38 lots at Newark (New Jersey) during the period June 5 to 27 show that while less than 1 percent decay was noted in 7 lots, from 1 to 15 percent of the tubers in the remaining 31 were decayed with an average loss of 3.2 percent.

An unusual reddish-brown discoloration of Chippewa and Katahdin potatoes from Maine was observed on a number of occasions during April. The discoloration involved at various times the cortex or the vascular ring, or extended well into the tuber. When found abundantly near the surface the appearance in a general way was similar to that of late blight. In some instances the entire potato had a water-soaked appearance upon cutting, suggesting mild freezing injury. Blackheart was present in some tubers of nearly all lots affected with the discoloration. Whether the trouble is a type of freezing injury or low-temperature injury at temperatures above the freezing point, or whether it is a form of smothering is unknown. Similar trouble was noted on Maine potatoes of these varieties received during April, 1938.

A high percentage of the tubers in 2 carlots of central New Jersey potatoes received on the market in mid-September had discolored sunken lesions in irregular pattern over large areas of their surface. Early to advanced stages of bacterial soft rot were evident in some of the lesions.

Powdery scab (Spongospora subterranea) was found affecting several tubers sent in from Albany. They were the only ones found there in a market inspection of a New-York-State-grown lot. Each tuber bore a number of the characteristic pustules. This is the first time that we have observed this disease on the market.

TOMATO:

Tomatoes from the Crystal Springs area of Mississippi arrived in very poor condition during the early part of June. A high percentage of spoilage was found in many cars. The most important decays were bacterial soft rot (Erwinia carotovora), phoma rot (Phoma destructiva), and soil rot (Rhizoctonia solani). Discolored skin checks and blemishes of all sorts were present in unusually high amount, particularly over the shoulder areas. An examination of certificates issued by the Agricultural Marketing Service on the inspection of 68 carlots between June 7 and 12 revealed that 2 to 50 percent of the tomatoes per car were affected with decay, with an average of 8.5 percent for all 68. At the same time approximately 13 percent were blemished by the presence of brown discolored areas. It is reported that heavy rains were prevalent prior to and up to the time of picking.

Bacterial canker (Aplanobacter michiganense) was observed on several tomatoes sent from Rochester, New York. The disease is seldom met with on the New York market.

Watery rot (Cospora lactis parasitica) has been observed on Florida tomatoes more frequently than in former years. In no instance, however, was the decay present in very important amounts.

(Division of Fruit and Vegetable Crops and Diseases, U. S. Bureau of Plant Industry).

SOME NOTES ON BACTERIAL RING ROT OF POTATOES IN CALIFORNIA

Gilbert L. Stout

The first report for California of the bacterial ring rot disease of potatoes was made by P. A. Ark (1) after he found the organism, Phytomonas sepedonica (Spieck. u. Kolthoff) Bergey, et al. [Bacterium sepedonicum], in potato tubers which were grown in San Joaquin County, California in 1938. Later, Ark and Bodine (2) reported the disease to have appeared during 1939 in severe form in Kern County, one of the largest areas in the State for early shipping potatoes. Both top and tuber symptoms were reported.

During the 1939 season surveys were made by members of the staff of the Bureau of Plant Pathology of the California State Department of Agriculture and in cooperation with some of the county agricultural commissioners and their staffs. Field diagnoses in all cases were confirmed by laboratory diagnoses in our laboratory at Sacramento. While not all potato-growing areas in the State have been surveyed by us, our observations have shown the disease to be widely scattered.

It is estimated that about 75,000 acres of potatoes (early, intermediate, and late) are grown in California. Approximately two-thirds of the acreage is grown in the areas in which we have found the disease.

We have found the disease in the Counties of Kern, Los Angeles, Riverside, San Benito, San Joaquin, and Siskiyou, and in both early and late plantings.

Varieties found to be affected were White Rose, Burbank, and Netted Gem.

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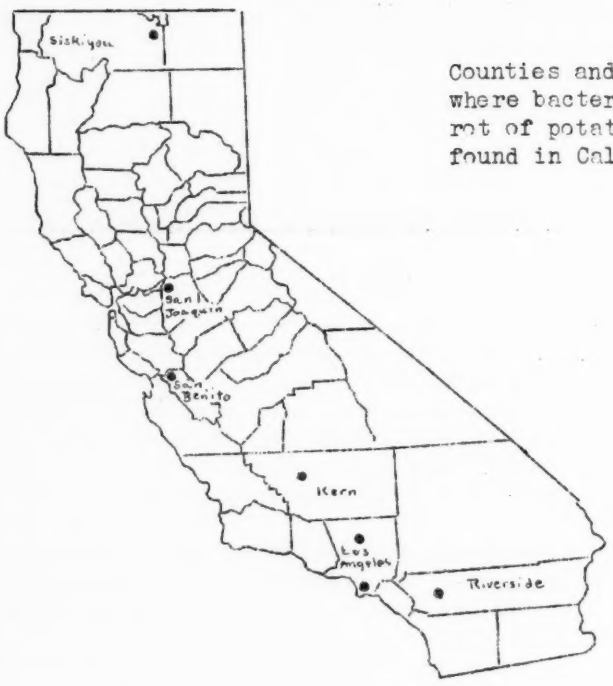
(1) Ark, P. A. Bacterial ring rot of potatoes in California. U.S.D.A., Bur. Pl. Ind., Plant Disease Reporter 23(7): 125. 1939.

(2) _____, and E. W. Bodine. Bacterial ring rot of potatoes in Kern County, California. U. S. D. A., Bur. Pl. Ind., Plant Disease Reporter 23(11): 199. 1939.



Counties and localities where bacterial ring rot of potato has been found in California.

On July 17 and 18, 1939, Dr. M. R. Harris of this Bureau examined about a dozen plantings, representing two or three hundred acres, in Humboldt County, but failed to find evidence of the disease. At that time the White Rose variety in that locality was nearing maturity and should have shown evidence of the disease if present. In that locality growers for years have been using their own seed as a rule.

The first field observation of this disease by the writer was made at Roma Land, near Perris in Riverside County on May 24, 1939, in an early field of 24 acres of White Rose then being dug. The tops of the plants had not yet died down and a large percentage of the plants were showing top symptoms. There was considerable loss from tuber rot. Tubers recently dug and temporarily stored in a shed were showing serious breakdown. Growers reported the same condition to be widespread in the area. Specimens were diagnosed in the laboratory at Sacramento as positive for Phytomonas sepedonica.

At about this same time the disease had been showing in serious proportions in the Shafter district of Kern County and growers were encountering difficulties with tubers breaking down during shipment or being in a serious condition of decay on arrival at destination. Field observations of the disease were made in this district by D. G. Milbrath, Chief of this Bureau, as well as in other districts. Field diagnosis was confirmed by laboratory diagnosis.

On July 5 specimens were received from the County Agricultural Commissioner's office in San Joaquin County which were affected with the disease. Surveys showed the disease to be abundant and widespread in this (delta) area.

During August the writer examined a small planting near Long Beach in Los Angeles County which was showing tuber symptoms at digging time. At this same time the disease was found in tuber specimens received from the Newhall and Saugus area in this county.

During a survey made in early October Dr. M. R. Harris found the disease in a number of fields in the Tule Lake area of Siskiyou County.

At this same time specimens of infected tubers were received from San Benito County showing the disease.

We have found that top symptoms of the disease can be detected in plantings from 85 days old to maturity, although failure to find top symptoms is not a guarantee that the disease is absent. The best time to find top symptoms probably is about 100 days after planting or just before the tops begin to die down. Perhaps the surest way to determine the presence of the disease in a planting, when top symptoms fail to indicate suspicious plants, is to follow the digger and to examine a large number of tubers at the time of digging.

Our records of the distribution of the disease in California, so far as our own surveys are concerned, are indicated on the accompanying outline map. We have not covered all of the potato areas but this report covers all the areas we have surveyed.

(California State Department of Agriculture).

BACTERIAL RING ROT OF POTATO IN IDAHO

C. W. Hungerford and J. M. Raeder

Surveys conducted during August (early potato areas) and in October (late-producing districts) by members of the staff of the department of plant pathology located the ring rot disease [Bacterium sepedonicum] in nearly all of the potato-growing sections of southern Idaho. It is of interest that most of the seed used in planting the varieties where the disease was found originated from outside the State. Some of the shipments came into the State at least 2 years ago.

This year is the first that the disease has been definitely located in Idaho. Last winter one suspicious case was reported but it never was proved to be ring rot.

(From "Idaho Potato Growers Warned to Watch Out for New Disease" in University of Idaho College of Agriculture News Letter, vol. 22, no. 6. November 1939. Besides reporting occurrence in Idaho, the authors describe symptoms, discuss dissemination and losses, and emphasize the importance of disease-free seed, isolation of seed fields, and careful attention to approved sanitary practices, to potato seed growers in keeping their seed lots free from the disease. They remark that bacterial ring rot has been reported from 20 different States since it was first reported from Maine in 1932).

VEGETABLE SEED TREATMENT TESTS IN NEW YORK

H. S. Cunningham

HOT WATER TREATMENT EFFECTIVE IN ELIMINATING BLACK ROT ORGANISM FROM CAULIFLOWER SEED: The severe infestation of black rot [Bacterium campestre] in cauliflower fields last season has once again emphasized the importance of this disease and the losses it may cause when conditions are favorable for its development. For some years after the hot water treatment of seed came into general use on Long Island the disease caused very little damage although most years isolated cases could be found. In later years, with conditions more favorable for the development of the disease, several bad outbreaks have occurred. With these outbreaks the grower has naturally questioned the value of the hot water treatment or he has wondered if the Farm Bureau was doing a thorough job.

As one phase of this problem and in order to settle the matter of seed treatment the Farm Bureau saved a small sample of untreated seed from most of the lots of seed treated in 1939 and also a similar sample after the seed was treated. These seeds were placed on agar plates and kept under conditions favorable for the growth of the organism. Washings were made from these plates and cauliflower plants inoculated with this liquid. After inoculation the plants were kept under ideal conditions for infection and then were kept on the greenhouse bench a sufficiently long time to allow the symptoms of the disease to appear.

The results are given in the following table.

	Not treated		Treated	
Kind of seed	Samples tested	Samples showing blight	Samples tested	Samples showing blight
Cauliflower	11	5	11	0
Cabbage	23	11	24	0
Sprouts	46	27	46	0
Collards	1	1	1	0
Kohl rabi	1	1	1	0
Ruta baga	1	0	1	0
Kale	1	1	1	0
	84	46	85	0

A glance at the table will show that nearly 55 percent of the untreated samples carried the black-rot organism and that not a single sample showed any evidence of the presence of the organism after the hot water treatment had been used. Judging from the samples tested the treatment has been 100 percent effective this season.

It would thus seem that if all growers used treated seed there would be no danger from that source. If black rot appears in the fields when treated seed is used the plants must have become infected either in the seed bed or in the fields and it is only fair to say that we have been slowly accumulating evidence to show that this is the case.

EFFECT OF POWDERED GRAPHITE IN LIMA BEAN SEED TREATMENT: In the course of seed treatment tests with Lima beans during the season of 1939 powdered graphite was used as one of the materials. This was applied to the seed at the rate of 1/8 percent by weight. In hand-planted trials this material appeared to have little value but in machine-planted plats the stand was materially improved by applications of graphite. The results would indicate that the effect is mechanical rather than fungicidal. Not only was the stand improved but the seeding was more uniform where graphite was used.

(New York State Agricultural Experiment Station and Cornell University Agricultural Experiment Station, Long Island Vegetable Research Farm, Riverhead).

DOWNY MILDEW INJURY OF TOBACCO IN THE FIELD AND AFTER HARVEST IN MASSACHUSETTS

C. C. Boyd

Very little damage occurred in Massachusetts this year from seed-bed infections with downy mildew [Peronospora tabacina] primarily because of the comparatively warm, dry weather that prevailed shortly prior to and during field setting. Nevertheless, bed infections were not at all uncommon late in the plant-pulling and restocking seasons, and the disease even spread to plants already established in the field. This was true for both Havana seed and shaded fields.

Importance of Tent Infections: In 1937, the first year downy mildew was observed in Massachusetts, it attacked the plants in both open and shaded fields during the latter half of June, and it remained active there, at least in the tents, until the first week of July. Observations that year indicated that it might attack plants in tents more readily and remain active longer than in Havana seed tobacco. This year, although downy mildew was present in a few fields of Havana seed tobacco, as the result of planting diseased plants or of its spread from nearby diseased plant beds, yet its survival there was of short duration. It affected only the bottom-most leaves.

Its behavior in tents was different. It not only continued to enter the tents from nearby infected beds later in the season than it attacked Havana seed plants, but it remained active there longer. In fact, it produced spores on the infected leaves in the tents and spread from plant to plant independently of diseased plant beds. New leaf spots were appearing as late as July 10. Fortunately, however, the crop in only a few tents in this State was injured sufficiently to reduce its value. In some instances the disease was limited to the lower leaves. In others, light to moderate spotting occurred on leaves half way up the plant, with heavier spotting lower down on the stalks.

An attempt was made to follow the disease on shade tobacco from the field to the grading of the leaf in the fall. Samples of infected leaves were collected and pressed during harvest (mid-July), when the crop was coming down from the curing shed (July 31), after about three weeks in the sweat piles (September 12), and finally during sizing and sorting of the leaves for grades (early November). Needless to say, the large, dead spots that were present at harvest resulted mostly either in ragged holes or in immature, poorly cured, semi-brittle spots easily torn during grading. Most of the downy mildew spots, however, were of a milder sort, appearing as yellowish, speckled areas about one-fourth to three-eighths inch in diameter, in which the fungus died before the tissue in the spot was entirely killed.

It was found ultimately that even those spots failed to cure normally, the tissue being decidedly discolored, somewhat stiffer than the uninjured leaf, and rather readily torn during normal handling. It was the opinion of an experienced manager of one sorting shop that downy mildew this year reduced the grade of shade tobacco from the highest grade, with a likely value of $2.50 per lb. to 30-50 cent grades where the leaves were moderately to heavily spotted; and with lighter reductions in cases of light infections. At any rate, it was found that the disease caused a considerably greater reduction in grade of leaf than was suspected at harvest time. In fact, apparently no area of a leaf that contains a distinct spot of downy mildew is acceptable for wrapper purposes.

Conclusion: Since downy mildew is established in the Connecticut Valley, and since it is capable of causing significant losses not only in the seed beds but in the fields as well, growers of shade tobacco in particular must observe, in addition to the usual bed-treatment practices, every precaution to keep the disease out of the fields. The most important steps in that connection are (1) continuing the plant bed treatments right through the restocking season, and (2) then promptly destroying the beds as soon as restocking is finished. These same precautions should be observed by the owners of Havana seed beds; otherwise they may become diseased during or following restocking and thus act as a dangerous source of downy mildew for nearby or even distant shaded fields.

(Massachusetts State College Crop Disease Notes, November 15, 1939).

TOBACCO FIELD DISEASES IN FLORIDA, 1939

Randall R. Kincaid and W. B. Tisdale

Cigar-wrapper: Downy mildew (Peronospora tabacina) caused some leaf spotting in nearly all fields of cigar-wrapper tobacco under artificial shade during the cool weather which prevailed until about the middle of May. In one field of 2 acres transplanted early, where nearly half of the leaves were more or less damaged, the plants were cut off 9 weeks after transplanting, and a fair crop was produced from suckers. The wrapper crop as a whole was not seriously damaged by downy mildew in the field.

The very wet weather which prevailed after the middle of May caused considerable drowning, and the quality of a large part of the crop of all types grown in Florida was adversely affected. Wet weather favored the occurrence of several parasitic diseases, including Phytophthora leaf spot (P. parasitica var. nicotianae) on the lower leaves of cigar-wrapper tobacco, hollow stalk (Bacillus aroideae) which was observed in one field, and a leaf spot apparently caused by Phyllosticta sp. This leaf spot was apparently favored by wet weather late in the season.

Root knot (Heterodera marioni) was widespread, as usual, but no instances of severe damage were reported. Mosaic (virus), stem rot (Sclerotium rolfsii), and Fusarium wilt were also observed during the season.

Flue-cured: Because of the damage caused by downy mildew in the plant beds, transplanting continued over a period of 5 or 6 weeks. This long transplanting period was accompanied by dry cool weather which caused wide irregularities in growth of the plants. With the occurrence of rains and warm weather beginning in May, the plants grew very rapidly and produced thin leaves. This condition of the leaves was aggravated by leaching of the soluble fertilizers. In many fields there were symptoms of magnesium and potash deficiencies. This apparently accounted for much of the sleazy and "washed-out" tobacco on the market.

Frogeye (Cercospora nicotianae) and brown spot (Alternaria longipes) also caused considerable damage, frogeye being most prevalent. Frogeye spots were so numerous on the leaves in many fields examined that the leaves were lifeless and brittle. Leaves affected with brown spot were not so conspicuous on the market, but observations made in some fields indicated that a portion of many crops was not harvested because of the prevalence of this disease.

(Florida Agricultural Experiment Station).

SMUT LOSSES DROP IN THE NORTHWEST

(University of Idaho, College of Agriculture, News Letter, vol. 22, no. 6. November 1939).

From inspectors at Portland and other Pacific Northwest grain markets come reports that this year only about 5 percent of the cars of wheat graded "smutty". This record shows tremendous improvement over the 35 to 40 percent that graded "smutty" only a few years back.

Wheat specialists of the U. S. Department of Agriculture say those figures tell only part of the story. There has been an even greater reduction in the amount of wheat destroyed outright by smut [Tilletia] in the fields.

Three factors, drier weather at planting time in recent years, more attention to seed treatment, and the development of new varieties which are more resistant to smut than the older ones, have brought about the sharp decline in percentage of smutty cars of wheat.

The new wheats, which possess degrees of resistance, include Ridit, Albit, and Hymar from the Washington station; Oro, Rio, and Rex from Oregon; Baart and White Federation from California; and Relief from Utah. These wheats were developed by the State stations in cooperation with the U. S. Department of Agriculture.

Wheat specialists go so far as to say that had it not been for research work the past 30 or 40 years on smut and the breeding of varieties with greater resistance some areas now would be unable to grow wheat at all.

OBSERVATIONS ON SEVERAL DISEASES OF HARDWOODS IN THE LAKE STATES

Rolland C. Lorenz and Ross W. Davidson

Eutypella Canker on Box Elder

In March, 1939, a canker similar to one commonly occurring on maples[1/] was found on box elder, Acer negundo L., along the Little Fork River east of Grand Falls, Minnesota. The heavy buff-colored mycelial fans characteristic of Eutypella parasitica Davidson and Lorenz were present under the bark and its perithecia were abundant in the bark on the central area of the canker. The tree was 5 inches d.b.h. and intermediate in crown classification. The fungus was isolated and used to inoculate red maple, Acer rubrum L., sugar maple, A. saccharum Marshall, and box elder.

1/ Davidson, R. W., and Lorenz, R. C. Species of Eutypella and Schizoxylon associated with cankers of maple. Phytopath. 28: 733-745. 1938.

Schizoxylon Canker on Elm

In the same locality as mentioned above, another canker was observed on a 5-inch d.b.h. American elm, Ulmus americana L. Both the apothecial and pycnidial stages of Schizoxylon microsporum Davidson and Lorenz (l.c.) were fruiting on the marginal area of this canker. In August, 1939, two similar cankers were collected by Clyde M. Christensen and Rolland C. Lorenz near Itasca State Park in Northern Minnesota. Both of these cankers occurred on suppressed elm trees. The fungus has not previously been reported on any hosts except red maple and sugar maple. A culture from one of the elm cankers was used to inoculate American elm, red maple, and sugar maple.

Heart Rot of Black Ash

During the summer of 1936 the fungus Fomes conchatus (Pers.) Gill was found to be causing butt and trunk rot of living black ash, Fraxinus nigra Marshall, in Northern Wisconsin and just north of Baldwin in Lower Michigan. Since then it also has been collected on living black ash in Northern Minnesota. Clyde M. Christensen has determined it as the cause of a heart rot of black ash in Itasca State Park in Northern Minnesota.

(Division of Forest Pathology, Bureau of Plant Industry).

FOMES ANNOSUS ON CONIFERS IN CONNECTICUT

E. M. Stoddard, A. D. McDonnell, and H. W. Hicock

In 1928 fruiting specimens of Fomes annosus (Fr.) Cke. were collected on white pine, Pinus strobus L., in the town of Bloomfield, from a natural stand approximately 75 years old and in a 21-year-old plantation.

No attempt was made to secure data on the host range of this fungus in Connecticut until 1938, when the hurricane of September 21 uprooted a large number of trees of different species in the Experiment Station plantation at Rainbow. This calamity afforded an excellent opportunity to observe the roots of the different species and determine easily the presence of fruiting bodies growing on them.

The following species were found to be infected: Pinus strobus L., Pinus sylvestris L., Pinus densiflora Sieb. and Zucc., Pinus banksiana Lamb., Picea excelsa L., and Abies balsamea Mill.

There was one center of infection where a large number of white pines and Norway spruce were diseased, with individual trees or small groups scattered throughout the entire plantation of 100 acres. White pine seemed to be most generally and seriously affected of all the species although its greater abundance may have accounted for this impression.

At about the same time as the above survey was made a specimen of the same fungus was collected on Pinus rigida Mill. in Enfield.

(Connecticut Agricultural Experiment Station).

NOTES ON "X-DISEASE" OF PEACH CONTROL IN CONNECTICUT AND REPORT FROM WISCONSIN

E. M. Stoddard

"X-disease" has continued to spread in Connecticut on both peach and chokecherry, Prunus virginiana, during the season of 1939. At the present time there is no section of the State safe for planting peaches unless the chokecherry has been eradicated. Experiments on the control of this disease indicate at the end of a 4-year period that "X-disease" can be controlled by the complete eradication of chokecherry in the immediate vicinity of the orchard. Data taken during the past summer show an initial spread of 280 feet from the nearest infected chokecherry under the conditions obtaining where the observations were made. So far the disease has not been found on Prunus serotina, or any species of Prunus other than P. virginiana, in Connecticut.1/

Specimens of chokecherry showing symptoms of this disease were received from two places in Wisconsin during 1939.

(Connecticut Agricultural Experiment Station).

SCLEROTIUM ROLFSII ON APPLE TREES

J. S. Cooley

Apple trees killed by southern blight (Sclerotium rolfsii) have been received from Charlotte, North Carolina. The trees were from 2- and 3-year old orchards in which Korean lespedeza was used as a cover crop, clean cultivation being practiced in the tree rows. This disease has sometimes caused considerable losses in apple nurseries, but it has been reported prior to this only once (Turner, Thos. W., Phytopath. abs. 26: 111, 1936) as occurring on trees old enough to be set in the orchard.

(Division of Fruit and Vegetable Crops and Diseases, U. S. Bureau of Plant Industry).

1/ [NOTE: Attention is called to the correction of the report of "X-disease" on P. serotina in Massachusetts, the host being actually P. virginiana incorrectly identified (PDR 23: 249).]

APPLE DISEASES IN PENNSYLVANIA

SUMMARY OF APPLE DISEASES IN ALL PARTS OF THE STATE DURING 1939

R. S. Kirby, G. L. Zundel, A. H. Bauer, and H. W. Rankin

Treatments or sprays	Number orchards surveyed	Number apples counted	Percentage of diseased apples										
			**Scab	Brooks spot	Sooty blotch	Blotch	Black rot	Bitter rot	Apple rust	Quince rust	Black pox	Brown rot	Total
Completely sprayed:	141	67,650:	1.1	.18:	.09:	.004:	.02	.04	.024:		.05		1.5
Partly sprayed	242	87,973:	8.15:	.54:	2.52:	.06	.10	.17	.02	.003:	.16		11.6
Unsprayed	47	4,060:	62.9	4.6	54.8	5.9	2.9	.02	.02		.6	.04	100.
Total number	430	159,683:											
Partly sprayed (orchards that did not receive all recommended sprays, material, etc.):													
Timing off	6	1,800:	12.8	.16:	4.1	0	.05	3.05	.16	.11	0	0	20.5
Spraying method off	16	5,140:	19.7	2.7	1.3	0	.02	.03	0	0	.05	0	23.8
Substitute material	29	10,650:	1.4	.31:	.18:	0	.02	.61	.06	0	.28		2.6
One spray omitted	110	42,250:	5.7	.21:	.79:	.01	.06	.01	.02	.02	.15	.002:	6.9
Two sprays "	52	20,200:	4.9	.26:	1.1	.11	.064:	.04	.01	.004:	.009:	0	6.55
Three " "	16	4,203:	16.2	.28:	2.9	.28	.14	.35	0	0	.11	0	20.2
Four " "	20	4,600:	22.9	1.67:	18.4	.3	.35	0	0	0	.15	0	45.4
Five " "	8	1,800:	13.6	1.5	9.4	0	.77	0	0	0	0	0	26.
Six " "	3	580:	74.6	11.	57.9	0	1.3	0	0	0	11.	0	100.
Summary of one or more sprays omitted:	209	73,633:	7.9	.44:	2.76:	.07	.12	.04	.01	.002:	.19	.001:	11.5
All sprays applied except the one named:													
Delayed dormant	32	14,150:	4.	.07:	.26:	.01	.09	.01	0	0	.04	0	4.5
Pre-pink	21	6,500:	6.3	.53:	1.1	.04	.01	0	.12	0	0	0	6.1
Pink	12	3,400:	11.6	.02:	.3	0	.05	.05	0	0	1.5	0	13.5
Petal	2	250:	3.2	2.4	0	0	0	0	0	0	0	0	5.6
First cover	4	550:	11.	0	3.8	0	.18	0	0	0	0	0	15.4
Second cover	8	2,450:	7.7	1.3	1.5	0	.07	.08	0	0	.2	0	10.9
Last cover	42	14,000:	3.5	.06:	1.1	0	.05	0	.01	0	.01	.01	4.7

*Completely sprayed as per college recommendations as to material, time, number of sprays, etc.

**Scab [Venturia inaequalis], Brooks' spot [Mycosphaerella pomi], sooty blotch [Gloeodes pomigena], blotch [Phyllosticta solitaria], black rot [Physalospora obtusa], bitter rot [Glomerella cingulata], apple rust (Gymnosporangium juniperi-virginianae), quince rust (G. clavipes), black pox [Helminthosporium torulosum], brown rot [Sclerotinia fructicola].

THIRD NATIONAL PLANT NEMATODE CONFERENCE

The Third National Plant Nematode Congress will be held at Birmingham, Alabama, Friday afternoon, February 9, 1940, in connection with the annual conventions of the Association of Southern Agricultural Workers, the Southern Division of the American Phytopathological Society, and the Cotton Disease Council. Program arrangements are in charge of Dr. R. F. Poole, State College, Raleigh, North Carolina. The Conference is open to all scientists interested in plant nematode research.

REQUEST FOR INFORMATION ON INCIDENCE AND IMPORTANCE OF NEMATODES: While nematodes are understood to be a very important factor in crop production, little definite information as to how much damage they actually do cause is available, reports being generally vague and inadequate even with respect to the widespread and omnivorous root-knot nematode. There are several very good reasons for this lack of positive information. With special reference to the root-knot nematode there could be mentioned, among other reasons, similarity of symptoms to those induced by other factors; simultaneous occurrence of the nematodes and other causes of disease and consequent difficulty of evaluating damage due to either cause; the constant presence of the nematode which, through preventing comparison with non-affected crops, results not only in the overlooking of its usual effects but also in underestimation of damage in severe occurrences.

Nevertheless, this most destructive of the plant nematodes, the root-knot nematode, because of the many important crops it attacks, is suspected of causing, year in and year out, greater average losses in the United States than any other single crop pest or parasite. Other nematode species are also serious crop enemies. Control is beset with unusual difficulties and demands more intensive scientific research than has been devoted to it in the past.

It is desirable to accumulate as much and as definite information as possible on the incidence and importance of nematodes. Readers who have made specific observations on the occurrence and results of nematode attack, on losses, crop failure, type of injury, etc., or who possess other information of interest, are asked to send reports to the Survey. The reports will be summarized for the use of the Conference.

NOVEMBER WEATHER

(From U. S. Department of Agriculture, Weather Bureau, Weekly Weather and Crop Bulletin for week ending December 5, 1939).

The weather for November 1939 was characterized by marked dryness nearly everywhere east of the Mississippi River and also over the northern half of the western two-thirds of the country. Temperatures averaged somewhat subnormal in the Eastern States and throughout most of the South, but they were abnormally high rather generally from the Mississippi Valley

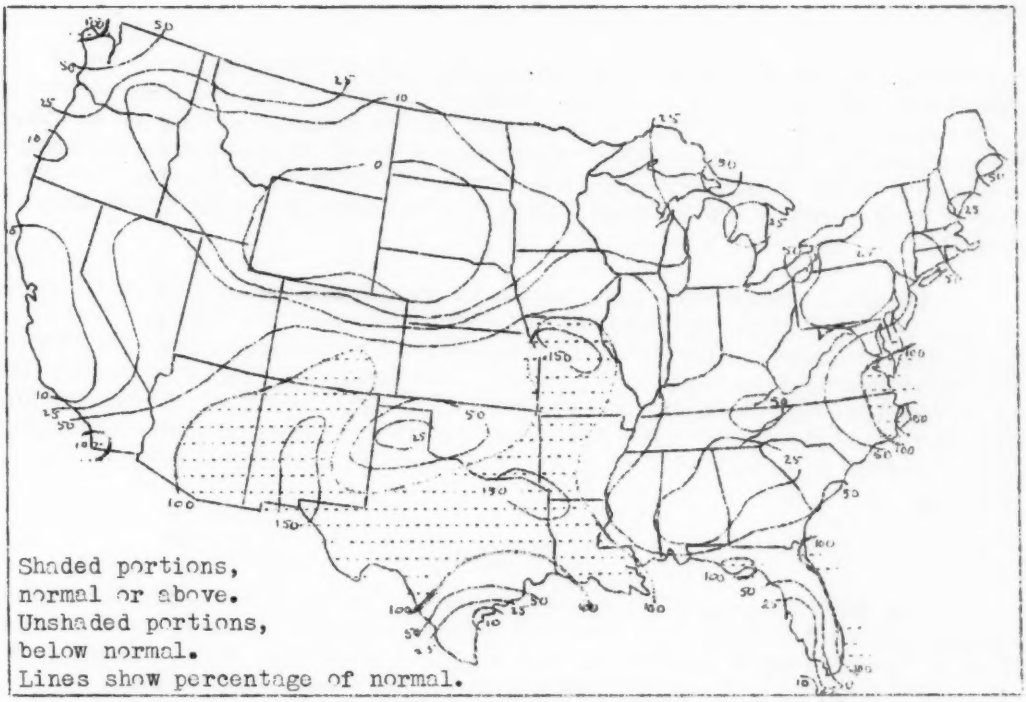


Fig. 1. Percentage of normal precipitation for November 1939.

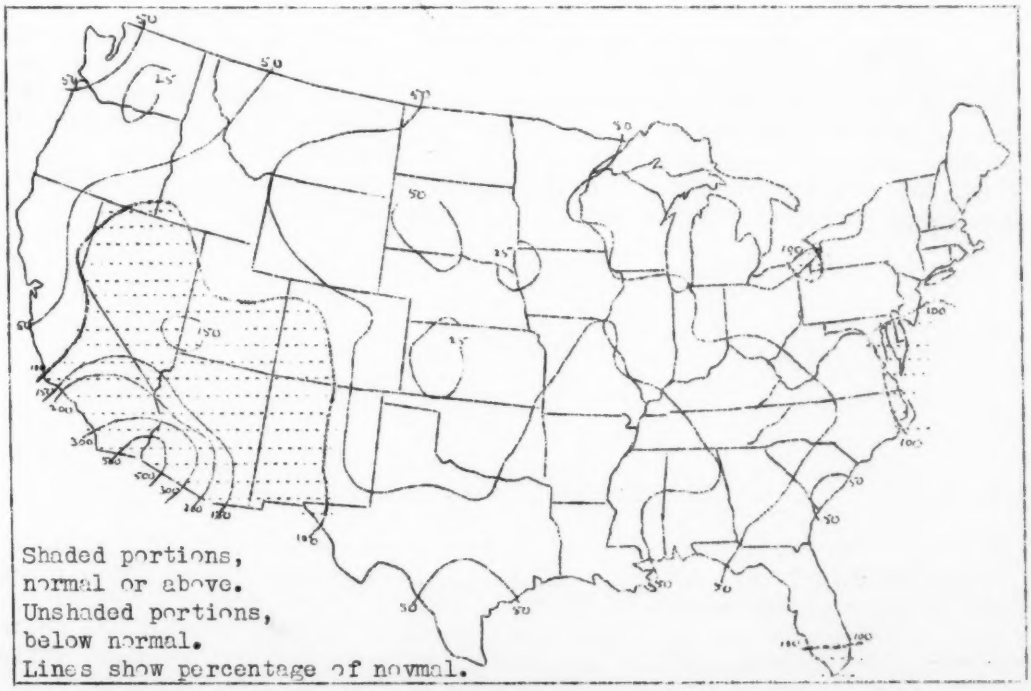


Fig. 2. Percentage of normal precipitation for the fall (September-November) 1939.

westward. In the Atlantic area the monthly means were mostly 1° or 2° subnormal and from Tennessee and Arkansas southward and southwestward the deficiencies were 2° to 3°. However, in the western Lake region, the upper Mississippi Valley, the central and northern Great Plains, and quite generally west of the Rocky Mountains the month was from 3° to as many as 12° warmer than normal, the largest excesses appearing in the northern Great Plains.

Figure 1 shows that less than half the normal precipitation occurred in most sections from the Ohio Valley southward and northeastward, with considerable areas having less than one-fourth the normal amount. Also from the upper Mississippi Valley westward to the Rocky Mountains there was little or no precipitation during the entire month. Several areas of the Southwest had above normal, except that the southern Great Plains continued very dry. Also, extreme dryness obtained west of the Rocky Mountains, except very locally.

THE FALL OF 1939

The fall season, September-November, 1939 was remarkable for widespread, abnormal warmth and deficient precipitation. Temperatures averaged slightly below normal locally in the Northeast, the upper Lake region, and in a few localities along the Gulf coast. Otherwise, the seasonal means were decidedly high, averaging from 2° to about 5° above normal over nearly the entire country.

Figure 2 shows that the September-November precipitation was markedly deficient everywhere, except in a few localities in the more eastern States and a fairly large far southwestern area. Over the Great Plains and much of the central valleys the total falls for the 3 months were less than half the normal, with some sections having below 25 percent of normal. On the other hand, the extreme Southwest had abnormally heavy rainfall, some localities reporting from 3 to 5 times the normal amounts.